COLD CRANKING SIMULATOR HAVING HYBRID HEAT TRANSFER SYSTEM

ABSTRACT OF THE INVENTION

A heat transfer apparatus for use in measuring a rheological property of a test sample includes a receptacle for receiving the test sample and a heat conveying member in heat transfer relation to receptacle. The heat conveying member has internal passages extending substantially equidistantly from one another through at least a portion of the heat conveying member to provide for counter-flowing circulation of a fluid. A cold cranking simulator includes a hybrid heat transfer system having heat exchanging elements in heat transfer relation to the receptacle responsive to electric current to transfer heat to or from the receptacle. The cold cranking simulator further includes a heat conveying member having internal passages providing for counter-flowing circulation of a fluid.